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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/563,247

01/04/2006

Young Min Kong

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MCKENNA LONG & ALDRIDGE LLP  
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EXAMINER

WIESE, NOAH S

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/563,247	<b>Applicant(s)</b> KONG ET AL.	
	<b>Examiner</b> NOAH S. WIESE	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 5-12 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                    | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)         | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                          |

***Status of Application***

1. Acknowledgement is made of amendments filed 07/14/2009. Upon entering the amendments, the claims 1-5 are amended.
2. The claims 1-12 are pending and presented for the examination. Claims 5-12 are withdrawn from consideration.

***Claim Rejections - 35 USC § 102***

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 1-3 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Fothergill (US 5081081).

Regarding **claim 1**, Fothergill teaches a stabilized composition suitable for use in the manufacture of a ceramic material, said composition being a powder comprising zirconia and 1-10 wt% alumina (see Abstract). Fothergill teaches that the powder is made by oxidizing precursors of zirconia and alumina (see claim 11) and that the resulting zirconia-alumina composite powder has a crystal size of 20 nm and 30 nm (see examples 1 and 3). Although the crystal size of the zirconia and alumina powders were not individually measured, it necessarily follows that the powder sizes would be within the range of 10-20 nm for example 1 and 10-30 nm for example 2. The composite powder has a particle size that is dependent on the particle sizes of the zirconia and alumina (secondary) powders. Since Fothergill does not teach any step, such as a heat treatment, that would cause a large amount of particle (grain) growth, the particle size of the composite powder is necessarily close to the particle sizes of the individual

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powders. Additionally, the particle sizes of the zirconia and alumina powders could clearly not be greater than the 20 and 30 nm sizes of the composite powder. Therefore, the Fothergill powders are made from secondary particles that meet the size limitations of claim 1.

Further, the limitations of claim 1 that are drawn to the sizes of the secondary particles from which the nano-composite powder is made are product-by-process limitations. The claimed nano-composite powder could be made by a method other than that defined by the process steps of claim 1, and thus the product-by-process limitations do not themselves hold patentable weight when defining the claimed powder over the prior art. The limitations of claim 1 are anticipated by or obvious in view of the teachings of Fothergill.

Regarding **claim 2**, as discussed above, Fothergill teaches that the composite powder contains 1-10 wt% alumina, a ratio range of 99:1-9:1.

Regarding **claim 3**, Fothergill teaches that the zirconia contains a stabilizing agent that is yttria, magnesia, calcia, or ceria (see claim 8).

### ***Claim Rejections - 35 USC § 103***

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fothergill (US 5081081).

Regarding **claim 4**, the claim differs from Fothergill as discussed above because Fothergill does not teach the specific amount of stabilizing agent. However, Fothergill

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teaches that the powder comprises at least 85 wt% zirconia and 1-10 wt%. Given these percentages, powders could be produced that met the Fothergill limitations and contained as much as 14 wt% stabilizing agent. From these teachings, it is clear that one of ordinary skill in the art would have chosen an amount of stabilizing agent that falls within the exceedingly large range of instant claim 4. Thus, claim 4 is obvious and not patentably distinct over the prior art of record.

### ***Response to Arguments***

7. Applicant's arguments filed 07/14/2009 have been fully considered but are not persuasive.

Applicant argues that Fothergill fails to teach a powder meeting all of the limitations of the instantly claimed powder. Specifically, applicant contends that Fothergill fails to teach a powder that comprises secondary particles made up of sintered alumina and zirconia primary particles, said primary particles having the specified size ranges of the claims. However, as discussed in the previous office action, the limitations stating that the particles that make up the powder are themselves made by sintering oxide particles are product-by-process limitations. These limitations do not hold patentable weight in distinguishing the claims over the prior art because a zirconia-alumina composite powder equivalent to that of the instant claims can be made by a method other than the process prescribed in the claims. This is shown by Fothergill, which teaches a composite powder made up of particles that are homogenous mixtures of zirconia and alumina. This powder is compositionally and structurally equivalent to applicant's inventive powder as currently claimed; that one powder's composite particles

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are made by sintering primary oxide particles and the other's are made by combining oxide precursors and forming both oxides simultaneously as a composite material is immaterial because the Fothergill powder meets all of the product limitations of the instant claims. Thus, applicant's contention that the instant claims are allowable because Fothergill does not teach that the powder particles are made by the claimed method is not persuasive. The grounds of rejection for claims 1-4 over Fothergill are maintained.

Applicant's arguments regarding the patentability of the amended claims over the teachings of Provenzano et al are persuasive. Provenzano does not teach a powder made up of particles that are themselves made by sintering zirconia and alumina primary particles, nor does it teach a powder that is equivalent to a powder made in this way. The rejections of claims 1-2 over Provenzano are therefore withdrawn.

### ***Conclusion***

8. All the pending claims are rejected.

9. Applicant's arguments are not persuasive, and the previously issued grounds of rejection are maintained for pending claims 1-4. Therefore, **THIS ACTION IS MADE FINAL.**

10. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any

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extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to NOAH S. WIESE whose telephone number is (571)270-3596. The examiner can normally be reached on Monday-Friday, 7:30am-5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Noah Wiese  
16 November 2009  
AU 1793

/Karl E Group/  
Primary Examiner, Art Unit 1793